REMARKS / ARGUMENTS

Election/Restrictions

In response to the Examiner's restriction, claim 89 has been cancelled.

Priority

A certified copy of CA 2,316,045 is enclosed.

Specification

In the prior response, Applicants provided corrections of typographical errors of which Applicants are aware. Applicants submit that the application is largely free of typographical errors.

Claim Objections - 37 CFR 1.75(c)

Claims 60 and 82 were objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant was required to cancel the claims, or to amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

Claims 60 and 82 have been rewritten in independent form. Since claim 60 depended from both claims 44 and 45, a new claim 90 has been added which corresponds to claims 45 and 60 rewritten in independent form (with amendment).

Claims 49, 54, 56, 60, 61 were objected to because “claim” should be the plural “claims”. The claims have been amended to refer to "claims" where appropriate.

Claim Rejections – 35 USC § 112

Claims 50, 53, 59, 81 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Regarding claim 50, it was alleged that the specification does not mention solid pins or split pins. It is submitted that solid and split pins are described in the application, for example beginning on page 2, line 15.

Regarding claim 53, it was alleged that neither the specification nor drawings disclose a cover, which defines a plurality of cover apertures therethrough, secured to the plate over the inlets. It is submitted that the application does disclose a separate cover for covering the plate, for example on page 9, lines 7-9. The cover does not refer to a plate supporting the spotting members. The cover may also be in place when the spotting members are inserted into the apertures or spaced apart from the apertures.

Regarding claims 59 and 81, it was alleged that neither the specification, drawings, nor original claims disclose that the source of vacuum pressure provides a pressure of at least 90 psi.

In response to this objection, claims 59 and 81 have been deleted.

35 U.S.C. 112, second paragraph

Claims 44-67, 82 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 44-46, the Examiner alleged that the word "means" is preceded by the words "turbulence" and/or "vacuum" and/or "reciprocating" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. The Examiner stated that since no function was specified by the words

preceding "means", it was impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph.

In response to this objection, the Applicants submit that the equivalents of the elements in claims 44-46 can be determined because the words following "means" clearly define a function and thereby allow determination of equivalents of "turbulence means", "vacuum means" and "reciprocating means". Claim 82 has been cancelled.

Claims 60 and 82 were considered indefinite. The Examiner alleged that no structure was claimed.

Claim 60 has been rewritten in independent form to provide additional structure. Claim 82 has been cancelled.

Referring to claim 61, the Examiner alleged that it is unclear what part of the assembly of claims 44 or 45 a vacuum is being applied to. The Applicants have amended claim 61 to refer to turbulence is created in air flowing from the inlet to the outlet of each aperture. Amended claim 62 refers to applying a source of vacuum to the spotting members.

Claim Rejections - 35 U.S.C. 102

Claims 44-47, 54-56, 60, 61, 62, 65-71, 75, 82-84, 87 and 88 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,753,775 to Ebersole et al.

Claims 70, 71, 75, 82-84, 87 and 88 have been cancelled.

Applicants enclose amended claims to more particularly claim the invention. Applicants also provide a detailed discussion of the differences between their device and the cited art.

The Examiner alleges that Ebersole et al. disclose a manifold assembly (10) for removing liquid from microarrayers or microarray spotting members (36). Applicants note that the Ebersole et al. device is not a microarrayer. It is not intended, or possible, to use the Ebersole et al. device as a microarrayer. Thus, the device is not in the field of manifold assemblies or microarrayers for removing liquid from microarray spotting members or in an analogous field. In the present invention, microarray spotting members print spots on a microarray slide. The Ebersole et al. device does not have microarray spotting members. The Ebersole et al. objects referred to as part (36) are pipettes or the like which are primarily intended for fluid to fluid transfer, not for transfer of a liquid to a solid substrate, such as a microarrayer slide. Ebersole et al. do not in any way teach or suggest pins for printing a spot on a microarray slide. The objects (36) are also designed to hold solid supports, such as beads to which a material to be examined is affixed. For example, the patent describes the use of an upper chamber 38 for storage of capture reagents or a porous retainer 44 (column 9, lines 23 to 45). In an alternate embodiment, the tubular portion 40 is packed as a column by forming a porous plug to retain the column packing (column 9, lines 62-64) by allowing fluid to flow in and out of the tubular portion while retaining the solid support. The intended uses in Ebersole et al. are very different from microarray uses.

The primary function of the vacuum as described by Ebersole et al. is to draw reagents out of a reagent vessel (24) or wash solutions from a wash vessel (26). By virtue of the fact that the pipettes are in contact with a fluid flow channel, the liquids will be drawn into the reservoirs or forced in by air. The function of the vacuum is not to dry the liquid from the pipettes, but rather to draw fluid out and pump it back into the pipettes, and this is done to wash the solid supports contained in the pipettes.

A very important difference between the present invention and the cited art is that Ebersole et al. requires a vacuum tight seal between the tube and the manifold. This seal is obtained by inserting the tube into the manifold hole so that the side of the tube forms a seal against the hole. It is stated:

"The seal for the ports 20 may be accomplished by configuring the ports to either have an interior taper, as shown, adapted to receive a similarly tapered receptacle tip 42 (FIG. 2)..." (column 8, lines 26-28).

The requirement for a "closed system" is clearly emphasized at column 10 lines 24 to 29 where it is stated,

"The operation principle depends on the formation of a closed system created by inserting the fluid receptacles into ports of the multiport manifold. This forms a closed system involving coupling the inerior of the manifold and the interior of the receptacles and the interior of the receptacle or test device."

The necessity of a closed system is also stated at column 5, line 19 and at column 12, lines 5-24.

In view of the above excerpts, the Applicants emphasize that Ebersole et al. teaches away from the present invention. The present invention must not have a seal between the spotting members and the manifold. Instead, the present invention requires a high degree of air flow past the tip and into the manifold. The Applicants' spotting members must be brought into close proximity to the manifold, but the pins do not contact the manifold and create a seal. The spotting members are repeatedly reciprocated and this movement creates additional turbulence in the airflow which is being drawn into the manifold past the tips of the spotting members. The air is flowing rapidly through the apertures, and by moving the pins in and out of this air flow, micro-eddies will be formed which increases turbulence allowing for improved cleaning. Without this reciprocating motion, cleaning efficiency is greatly reduced because air will tend to collimate. The present invention would clearly not work if a seal was formed between the spotting member and aperture. As such, the function of the Ebersole device is very different than the present invention. Ebersole et al. emphasize the need for their device to maintain a closed system in order to function. The present Applicants' device will not function as part of a closed system. Indeed it is important that it not be closed because air must be permitted to flow into the manifold apertures.

The enclosed amended manifold assembly and microarrayer claims 44 and 60 more particularly define the invention as a non-closed system by reference to an "aperture having an axis, a first diameter, an upstream edge forming an inlet and a downstream edge forming an outlet, the edges defining the aperture," and "means for creating turbulence in air flowing from the inlet to the outlet in the space between the spotting member and the aperture." This amendment emphasizes the flow of air from the inlet to the outlet (for example, from the top of the manifold plate, through the aperture in the plate and out the bottom side of the plate). Since Ebersole et al. ~~requires~~ require a seal between the tube and the aperture, air cannot flow through the plate from the inlet to the outlet.

The absence of a seal in the present invention is also emphasized by the amendment to claim 44 which recites, "the first open end portion of the spotting member is adapted to extend into the corresponding aperture to a position where there is space between the spotting member and the aperture". Since there is space between the spotting member and the aperture, no seal is formed.

Claim 45 further emphasizes the absence of a seal by reciting "means for repeatedly reciprocating the spotting members generally axially toward and away from the apertures while maintaining the spotting members axially aligned with the corresponding apertures and limiting axially inward travel to provide clearance with the apertures in the limiting position". Since the spotting members are repeatedly reciprocated in a manner that provides clearance with the apertures, no seal is formed.

The Examiner also alleges that the Ebersole et al. manifold assembly (10) comprises a turbulence means to remove liquid. The Examiner points out that there is structure to create alternating air and vacuum flow. This difference between Ebersole et al. and the present invention is highlighted in the amended claim 44 which recites "means for creating turbulence in air flowing from the inlet to the outlet in the space between the spotting member and the aperture." Ebersole et al. does not have a means for creating

turbulence in air flowing from the inlet to the outlet. In fact, since Ebersole teaches that the pipette and aperture must form a seal, Ebersole et al. teaches away from the present invention.

The Examiner also alleges that Ebersole et al. discloses reciprocation for creating air turbulence between the spotting members. Amended claim 45 further emphasizes the invention by reciting "means for repeatedly reciprocating the spotting members generally axially toward and away from the apertures while maintaining the spotting members axially aligned with the corresponding apertures and limiting axially inward travel to provide clearance with the apertures in the limiting position". Ebersole et al. form a seal between the pipette and the aperture so it would be impossible to reciprocate the pipette during removal of liquid. Reciprocation in and out of the apertures would break the required seal. Ebersole et al.'s teachings lead away from the Applicants' amended claims which require repeated reciprocation of spotting members and clearance between the spotting members and the apertures. The Applicants are creating turbulence in a much different way than Ebersole et al., by disturbing the air flow with reciprocation of the spotting members, to remove liquid from the tips of the spotting members.

Independent method claims 60 and 61 include wording corresponding to the manifold assembly and microarrayer claims and are novel and non obvious over the cited art for the same reasons provided herein for the manifold assembly and microarrayer claims.

Claims 44-50, 54-56, 60-62, 65-72, 75-77, 82-84, 87 and 88 were rejected under 35 U.S.C. 102(e) as allegedly being anticipated by U.S. Patent No. 6,551,557 to Rose et al.

Claims 70-72, 75-77, 82-84, 87 and 88 have been cancelled.

There are very significant and fundamental differences between the Rose et al. implementation of a vacuum subsystem and the Applicants' invention.

The goal of the vacuum subsystem in Rose et al. is to form a full or partial seal between the pin tip and the manifold. This seal is considered important to ensure proper cleaning of the spotting members. See, for example, column. 8, lines 8-50 which states:

> "...step 86 forms a seal or partial seal with the tip tapered portion 204 when the tip tapered portion engages, contacts or abuts the step."

Rose et al. further emphasize the desirability of a seal at column 8, lines 52-57, 59-63 and 64-67 and column 9, lines 4-18, all of which refer to the goal of forming a seal or partial seal.

Clearly, the teaching of Rose et al. is to minimize or prevent air flowing through the plate. As a result, Rose et al. teaches away from the present invention in which Applicants use air flow from the aperture inlet to the outlet in the space between the spotting member and the aperture. Applicants' assembly requires that a seal, partial or otherwise is not formed since the invention relies on a fast rush of air to pass across the ends of the spotting members.

The amended claims emphasize the present invention by reciting an "aperture having an axis, a first diameter, an upstream edge forming an inlet and a downstream edge forming an outlet, the edges defining the aperture," and "means for creating turbulence in air flowing from the inlet to the outlet in the space between the spotting member and the aperture." This amendment emphasizes the flow of air from the inlet to the outlet (for example, from the top of the plate, through the aperture in the plate and out the bottom side of the plate). Rose et al. does not have a means for creating turbulence in air flowing from the inlet to the outlet. In fact, since Rose et al. teaches that the pin and manifold must form a seal or partial seal to minimize air flow, Rose et al. teaches away from the present invention.

Claim 45 further distinguishes over Rose et al. by reciting "means for repeatedly reciprocating the spotting members generally axially toward and away from the apertures while maintaining the spotting members axially aligned with the corresponding

apertures and limiting axially inward travel to provide clearance with the apertures in the limiting position". The robot in Rose et al. is not used to repeatedly reciprocate the pins over the manifold apertures during fluid removal to create turbulence to improve fluid removal. As with Ebersole et al., the vacuum system in Rose et al. requires a seal between the pins and manifold. Reciprocation away from the manifold would break this seal. Rose et al. relies on a vacuum to be created to draw fluid off of the spotting members. Rose et al. also does not use air turbulence to clean the pins.

For the same reasons, independent method claims 60 and 61 are inventive.

In summary, the Applicants emphasize that the vacuum subsystem in Ebersole et al. and Rose et al. require a seal between a tube or pin and the manifold which means that they cannot work on the basis of creating turbulence in air flowing from the manifold inlet to the outlet in the space between the pin/pipette and the aperture. In fact, both cited references teach away from creating turbulence in air flowing from the inlet to the outlet. Furthermore, Ebersole et al. and Rose et al. do not use pin reciprocation to create turbulence in air flowing through the manifold from the inlet to the outlet.

Claim Rejections – 35 USC § 103

Claims 49, 50, 77 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al. optionally in view of U.S. Patent No. 6,086,825 to Sundberg et al.

Claim 77 has been deleted.

The Examiner acknowledges that Ebersole et al. do not explicitly disclose spotting members that are pins and alleges that pipettes and pins are recognized equivalents in dispensing. Sundberg et al. allegedly discloses that fluid can be introduced into the ports using a pipette, pin, or the like (see COL. 8, lines 24-42).

Applicants noted above that the Ebersole et al. device is not in the microarray field and does not use the pipettes as a microarrayer spotting member, but rather as a receptacle and a fluid reservoir (reaction chamber). Furthermore, Applicants reiterate the above arguments and claim amendments which clearly distinguish the claimed invention from Ebersole et al. Sundberg et al. do not disclose or suggest aspects which, when combined with Ebersole et al., would obviate the presently claimed invention.

Claim 53 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al or U.S. Patent No. 6,551,557 to Rose et al. optionally in view of U.S. Patent No. 4,832,842 to Limb and/or U.S. Patent No. 6,455,007 to Mansky et al. and/or U.S. Patent No. 6,054,100 to Stanchfield et al.

The Examiner acknowledged that neither Ebersole et al. nor Rose et al. disclose a cover, which defines a plurality of cover apertures therethrough concentric with an inlet of the plate, secured to the plate over the inlets wherein the diameter of each cover aperture is less than the diameter of the inlet. The Examiner further alleged that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Ebersole et al. or Rose et al. to provide the claimed cover as in Limb and/or Mansky et al. and/or Stanchfield et al. for minimal loss of vacuum by providing sufficient but small holes for inserting spotting members.

A smaller aperture, or a cover with a smaller aperture compared to the inlet prevents loss of vacuum, but that is not the purpose of the cover in the Applicants' invention. Again, the Ebersole et al. device and the Rose et al. device require that a seal is formed. As they are both closed systems, it is not even necessary to engage the vacuum until the receptacles (Ebersole et al.) or microspotting members (Rose et al.) are in place and a seal is formed. Thus, the relative size of the apertures has no bearing on those devices, as long as a seal is formed.

Applicants' intention is not to form a vacuum seal and prevent loss of vacuum. In Applicants' manifold assembly, a seal is never achieved, nor is it desired. Applicants are

using a vacuum pump as a way to create a negative airflow into the chamber. The smaller apertures in the Applicants' cover ensure that a) the airflow is focused onto the tip of the spotting member, and b) the rate of flow is increased at the tip. Larger apertures lead to decreased localised airflow. The reduction of the apertures ensures maximal localised airflow rates. The Applicants' cover is useful, for example, where large apertures are present and a cover with small apertures can be placed over the manifold size to create the advantages of smaller apertures discussed above.

Furthermore, Applicants reiterate the above arguments and claim amendments which more particularly define the claimed invention. The additional cited art (Limb, Mansky et al. and Standchfield) disclose varied cover aperture to inlet aperture sizing but do not disclose or suggest aspects which, when combined with Ebersole et al., would obviate the presently claimed invention. In combining the devices of Limb, Mansky et al. and Standchfield one of skill in the art would still arrive at a device that requires a seal or partial seal between the pipette or pin and the manifold apertures.

Claims 57-59, 79-81 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al. or U.S. Patent No. 6,551,557 to Rose et al. The Examiner alleged that it would have been obvious to modify the Ebersole et al. or Rose et al. device to determine an optimum range of pressure.

Claims 59 and 79-81 have been cancelled.

Amended dependent claims 57 and 58 incorporate the amendments to claim 44 and clearly distinguish the claimed invention from Ebersole et al. and Rose et al. Applicants submit that it would not be obvious to configure a vacuum or particular vacuum pressure with the manifold components, to help provide the "means for creating turbulence in air flowing from the inlet to the outlet in the space between the spotting member and the aperture". Claim 46 further defines a vacuum means that "comprises a source of vacuum and a structure for coupling the apertures to communicate with the source of vacuum to draw air around the spotting members to flow from the inlet to the outlet".

Again, the air flow from the inlet to the outlet is quite distinct from the cited art. Rose et al. and Ebersole et al. do not provide any motivation to prepare a manifold assembly which uses air flow from the inlet to the outlet or the claimed pressures.

Claims 57-59, 79-81 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al. or U.S. Patent No. 6,551,557 to Rose et al. in view of U.S. Patent No. 6,416,713 to Ford et al. The Examiner alleges that it would be obvious to one of skill in the art to modify the device of Ebersole et al. or Rose et al. to determine and select an optimum pressure provided by the compressed air system.

Claims 59 and 79-81 have been cancelled.

Applicants submit that it would not be obvious in view of Ford et al. to configure a vacuum or particular vacuum pressure with the manifold components, such as the "means for creating turbulence in air flowing from the inlet to the outlet in the space between the spotting member and the aperture" or the vacuum means that "comprises a source of vacuum and a structure for coupling the apertures to communicate with the source of vacuum to draw air around the spotting members to flow from the inlet to the outlet". Ford et al. disclose use of a compressed air system, which, when combined with Ebersole et al. or Rose et al. would still provide a closed system. The combination of these references provides no motivation to create the currently claimed invention and certainly no reasonable expectation of success in arriving at the present invention.

Claims 48, 51, 52, 72-74, 76, 78 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al. or U.S. Patent No. 6,551,557 to Rose et al. The Examiner alleged that it would be obvious to modify the invention of Ebersole et al. or Rose et al. to duplicate the number of apertures.

Claims 72-74, 76 and 78 have been cancelled.

Modification of the Ebersole et al. or Rose et al. device to have 32, 48, 96 or more apertures would still not obviate Applicants' manifold assembly, methods or microarrayer because of the significant functional differences between the Applicants' device and the cited art, as discussed above. The devices in Ebersole et al. and Rose et al. function in a fundamentally different manner from the Applicants' manifold by creating a seal between the pipette or pin and the manifold. In the present invention, all 32, 48, 96 apertures would be cleaned by turbulence from air flowing through the manifold, whereas the cited art would require a seal between all the apertures and a corresponding pipette or pin to prevent air flow through the manifold.

Claims 63, 64, 85, 86 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al. or U.S. Patent No. 6,551,557 to Rose et al. The Examiner alleged that it would be obvious to modify the invention of Ebersole et al. or Rose et al. to have a reciprocation distance of 1mm or 100 micrometers between the tip and aperture.

Claims 85 and 86 have been cancelled.

In Ebersole et al. and Rose et al., the desired ultimate destination for the tips is to be in full contact with the manifold to form a seal to prevent air flow. This is very different from Applicants' invention which requires that the pin tips do not contact the apertures and impede air flow. In Applicant's manifold assembly, reciprocation also occurs a repeatedly during removal of liquid. As discussed above, the amended claim wording more particularly claims the invention by emphasizing that no seal is formed to impede air flow through the manifold.

In an embodiment, Applicants' spotting members remain at a distance of about 100 micrometers from the aperture at the closest point. The spotting member ends are optionally brought to within 100 micrometers of the aperture, then reciprocated or oscillated back and forth away from the manifold (around 1 mm distance) and back again to the 100 micrometer proximity. This action is repeated to create turbulence and

remove liquid from the spotting members. The air is flowing rapidly in through the apertures, and when left as is, will tend to collimate. By moving the pins in and out of this air flow, micro-eddies will be formed with increased turbulence allowing for improved cleaning. Without this motion, cleaning efficiency is greatly reduced.

Claims 63 and 85 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al. or U.S. Patent No. 6,551,557 to Rose et al. in view of U.S. Patent No. 4,439,526 to Columbus.

Claim 85 has been cancelled.

Neither Ebersole et al. nor Rose et al. are comparable to Applicants' assembly. Ebersole et al. and Rose et al. teach the desirability of positioning their pipettes or pins into a sealed or partially sealed configuration with the vacuum manifold apertures.

The Examiner alleges that since the spotting members "touch the aperture at some point" that the distances covered by Ebersole et al. and Rose et al. would have to cover the claimed distances of 100 micrometers or 1 mm. It is correct that the Ebersole et al. and Rose et al. devices require that the receptacles or spotting members be placed in contact with the apertures at some point. However, Applicants' manifold assembly, teaches away from touching the spotting members against apertures because this contact would impede air flow and prevent cleaning. Furthermore, the amended claims reflect fundamental functional differences with Ebersole et al. and Rose et al., as described above, so the cited art does not in any way suggest or disclose the claimed invention.

The Examiner also alleges that the claimed distances are negligible. Applicants respectfully disagree with this unsupported assessment. The tip of a typical commercially available spotting member pin used according to the invention is only 70 micrometers in diameter. Similarly the aperture is less than a millimeter in diameter. In addition, if the pins are not brought to within a very small distance (about 100

micrometers) from the aperture, the pins will not be cleaned effectively. In this context, distances are not negligible.

Applicants discussed the Columbus et al. patent in the previous Office Action response. The Applicants reiterate that Columbus et al. disclose a completely different technology. Columbus et al. describe a device for capillary transport of liquid along a passage. Specifically this is for loading diagnostic equipment. The device is loaded by placing a drop of fluid on an inlet port. That liquid is drawn into the inlet port by capillary action into the channel of the device (made by two opposing surfaces at a particular spacing in the range of 50 to 600 micrometers). This is unrelated to bringing the tip of a microarray pin in proximity to the inlet port of a vacuum manifold. Columbus et al. do not have anything to do with microarrays or spotting. It simply involves loading a liquid sample into a capillary device.

Claims 64 and 86 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,753,775 to Ebersole et al. or U.S. Patent No. 6,551,557 to Rose et al. in view of U.S. Patent No. 6,245,297 to Kowallis.

Claim 86 has been cancelled.

The Examiner alleges that it would have been obvious to modify the device of Ebersole et al. or Rose et al. to have a reciprocation distance of 1 mm between the tip and aperture to accurately direct the spotting member into the correct aperture location, prevent splashing, and reduce the amount of vacuum required to remove fluid within and around the tip.

Applicants submit that the currently amended claims more particularly define the invention. Kowallis makes no mention of the design of the manifold. The holes that are used to wash and dry the tips are empty holes where microtubes could be placed. As a result the aperture must be larger (much larger) than the tips of the pins. Kowallis is also not using a vacuum to dry the tips, but rather a gas under pressure. The amended

claims more particularly refer to the advantages of the invention and better distinguish over Ebersole et al. and Rose et al. In combining Kowallis with the other cited art, one still obtains a system that emphasizes forming a seal between the pin or pipette and the manifold.

Response to Arguments

The Examiner maintained that Kowallis and Columbus et al. provide evidence that the claimed distance between the spotting member and the aperture exists whether or not a vacuum is used.

Columbus et al. make no reference to distances in relation to a spotting member, but rather to the distances between two opposing surfaces to create a capillary channel. The Applicants are not trying to create a capillary channel. In regards to Kowallis, spotting does not bring the spotting members in proximity to an aperture. The act of spotting involves bringing the spotting member in close proximity (or in contact) with a solid planar surface. As such there is a significant difference. In addition, the cited references do not teach reciprocation as recited in the amended claims. Furthermore, the new references teach the desirability of pipettes or the like being brought in sealing contact with the aperture which clearly teaches away from the present invention.

In view of the foregoing amendments and comments, the Applicants respectfully submit that the application is now in condition for allowance. Favorable consideration is requested.

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